

Work Order ID 128061

128061

Page 1

Monday, January 05, 2015 11:42:50 AM

Item ID: D407-667-105 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Fwd Crosstube - High 407
 Start Date: 1/5/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 1/5/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: MLS Date: 15-01-05 Tooling: Date: Run Start ***NR1***
 QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D407-667-145	Rev C (DEO)								
DSI9565	A								
DSI9628	A								

100 Document Control 0.00
100 DOCUMENT CONTROL
 DC Memo 0.00
 Doc.Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

DAS
06
9-89

FEB 13 2015

110 Packaging 0.00
110 Memo 0.00
 Packaging
 Packaging

BL 15/01/06

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Item ID: D407-667-105

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N900040100Setup Start ***NS1***

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Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	BENDING MACHINE - CROSSTUBES					BL			
CNC Bend 2	Memo	0.00							
CNC Alpha 160 Bender	Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw								15/01/06
130	QC15- Crosstube Dimensional Check	0.00							
130						1			
QC	Memo	0.00							
Quality Control									DAS 38 9-89 15-01-6

DAS
9
9-89

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Item ID: D407-667-105

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N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00

140

Crosstubes

Crosstubes

Memo

0.00

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145.
Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

5- Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: [Signature] *****

[Signature] 15/01/2015

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Monday, January 05, 2015 11:42:50 AM

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Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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6- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145.

7- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

8- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145
Inside of Cuff (Do not engrave on outside of tube)9- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr
& Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145

—BX

15/01/21

150

QC5- Inspect part completeness to step on W/O 0.00

150

QC

Memo 0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
38
9-88

JAN 22 2015

160

0.00

160

HandFXtube

Memo 0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
41
9-89

15-1-27

1-CLEAN CROSSTUBE WITH WASH'N WIPE

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180	Outsource process - NDT per QSI038 4.1	0.00							
-----	--	------	--	--	--	--	--	--	--

180

Outsource2

Outsource process - NDT

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

OUTSIDE SERVICE -CROSSTUBES

Liquid Penetrant Inspection as per QSI 038 Or

Issue P/O 27247 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

190

190

Packaging

Packaging

Packaging

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for transit damage

Ensure copy of NDT results attached to work order.

200

200

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D206-667-145

received

1 x 8015-01-29

DAS
38
9-89

DAS
38
9-89

SI07-2-NV1

JAN 30 2015

DAS
38
9-89

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N900040100Setup Start ***NS1***

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Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

204

0.00

204

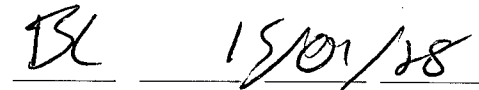
HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN
CROSSTUBE BEFORE CHEMICAL CONVERSION

206

QC7-Inspect Chemical Conversion Coat

0.00

206

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
41
9-89
15-1-30

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 Start Date: 1/5/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 1/5/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	SprayPaint	0.00				1			DAS 41 9-89
210									15-2-3

SprayPaint Memo 0.00
 Spray Painting *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***
 MASK AREA PRIOR TO PAINTING AS PER DWG AND DEO
 1-Prime inside and outside crosstube as per QSI 005 4.2
 2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME BATCH: 129807
 Start Time: 900
 Finish Time: 1000

PAINT BATCH: 131233
 Start Time: 200
 Finish Time: 300

15-02-02 Use Axalta
 0.00 Imron 3.5 H.G

220	QC14- Inspect Spray Paint	0.00				1			DAS 38 9-89
220									15-02-12

QC Memo 0.00
 Quality Control Then, Wrap in plastic bag to protect from scratches

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Start Date: 1/5/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							DAS
230	Crosstubes					<u>1</u>			41
Crosstubes	Memo	0.00							9-89
Crosstubes									15-2-8

INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER
DWG AND DEO
A/R SIKAFLEX BATCH: 131120

1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper,
clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D407-667-145 (DEO) and QSI 015
A/R Proseal 890 Batch: 130986
EXP: 6/15

3-Install supports clamps Using Dt9565 as per Dwg D407-667-145
(DEO), Torque to 80-100 IN-LBS.
PROSEAL CURE TIME 72 HOURS:
Start: 15-2-8
Finish: 15-2-11

4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron
paint.

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N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 1/5/2015 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

270

0.00

270

Packaging

0.00

Packaging

Memo

Identify and pack for shipping as per PPP D407-667-105

Location: 091

PPP Rev: _____

DAS

46

9-89

DAS

06

9-89

FEB 20 2015

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

MLJ 15-02-23

mf
15-2-20

Picklist Print

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Work Order ID: 128061

128061

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015

Required Date: 1/5/2015

Start Qty: 1.00

Required Qty: 1.00

Comments:
 IPP Rev:F 05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM
 IPP Rev:G 08-05-16 chg QC6 to QC15 DD verified by:EC
 IPP Rev:H 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec
 IPP Rev:I 08-07-14 add (scribe inside of tube) seq.6 DD verified by:EC
 IPP Rev:J 08-07-28 update as per (par 08-013) DD verified by:EC
 IPP Rev K 09.01.06 ECN 08-562 EC verified by:DD IPP REV:L
 11.08.05 PER ECN 11-615 DD VERF:EC IPP REV:M 12.08.20
 DSI9628 revA (ECN12-631) DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D206-667-017		Manufactured	No				Each	5.0000		1	DAS 41 9-89	15-2-9	
D206-667-017													
Ground Strap Installation													

Location	Loc Qty	Loc Code
FG	2	
97504	2	
LG054	3	
127122	3	

AN5-10A	Purchased	No	250	Each	82.0000	10	10	9-89
								FEB 13 2015
AN5-10A							**	

DAS
27
9-89

Location	Loc Qty	Loc Code
GA	51	
122800	51	
ST338	31	
M130466	31	

MB1305

DAS
27
9-89

Picklist Print

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Work Order ID: 128061

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Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015

Required Date: 1/5/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-30A

Purchased

No

250

Each

179.0000

4

4

AN5-30A

BOLT

DAS
66
9-69

Location

Loc Qty

Loc Code

ST299A

150

M127363

150

ST336

29

M128403

29

250

Each

395.0000

4

4

Location

Loc Qty

Loc Code

ST299A

371

m128403

71

m130716

200

m131139

100

ST336

24

m128634

24

250

Each

562.0000

4

4

Location

Loc Qty

Loc Code

GA

496

m127813

496

ST305

66

m130358

66

MS21042L5

Purchased

No

MS21042L5

Nut

DAS
66
9-69

DAS
27
9-69

FEB 13 2015

DAS
46
9-69

DAS
27
9-69

FEB 13 2015

DAS
46
9-69

DAS
27
9-69

FEB 13 2015

DAS
46
9-69

m131340

Picklist Print

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Work Order ID: 128061

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Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015

Required Date: 1/5/2015

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0563J

Purchased

No

250

Each

1,987.000

18

18

NAS1149D0563.J

Washer

DAS
27
2015

DAS
46
2015

FEB 13 2015

DAS
66
9-69

Location

Loc Qty

Loc Code

GA

130

m125807

130

ST260a

400

m130799

400

18

ST269

457

m128257

457

ST271

1000

m131026

1000

D407-667-105TRN

Manufactured

No

110

Each

3.0000

1

1

D407-667-105TRN

Crosstube Turning Detail

Location

Loc Qty

Loc Code

LG014

3

116476

1

125054

1

125683

1

1

BL 15/01/06

D2873-043

Manufactured

No

230

Each

16.0000

2

2

D2873-043

Nut Plate Assembly

CR 15-02-11

Location

Loc Qty

Loc Code

LG052

16

125127

16

127801

12

Picklist Print

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Work Order ID: 128061

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Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015

Required Date: 1/5/2015

Start Qty: 1.00

Required Qty: 1.00

D2873-045

Manufactured No

230

Each

11.0000

2

2

D2873-045

Nut Plate Assembly

CR 15.01.31

Location

Loc Qty

Loc Code

LG052

11

113886

1

125286

10

2

D2891-1

Manufactured No

230

Each

13.0000

2

2

D2891-1

Support 2.25

DAS

41

9-89

15-2-8

Location

Loc Qty

Loc Code

FG

2

84164

2

LG052

11

114948

1

*120972**

10

2

D3595-063-395

Manufactured No

230

Each

153.0000

4

4

D3595-063-395

Rubber Cushion

DAS

41

9-89

15-2-8

Location

Loc Qty

Loc Code

FG

5

87353

5

LG051

148

*115027**

92

115737

56

4

Picklist Print

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Work Order ID: 128061

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Parent Item: D407-667-105

D407-667-105

Parent Item Name: Fwd Crosstube - High 407

Start Date: 1/5/2015

Required Date: 1/5/2015

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

Each

173.0000

4

DAS

MS21920-20

41

Clamp

9.89

15-2-8

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

171

m128650

171

4

MS20601-AD4W10

Purchased

No

230

Each

367.0000

14

14

MS20601-AD4W10

OK 15.01.31

RIVET

Location

Loc Qty

Loc Code

LG050

367

M128594

67

M128701

300

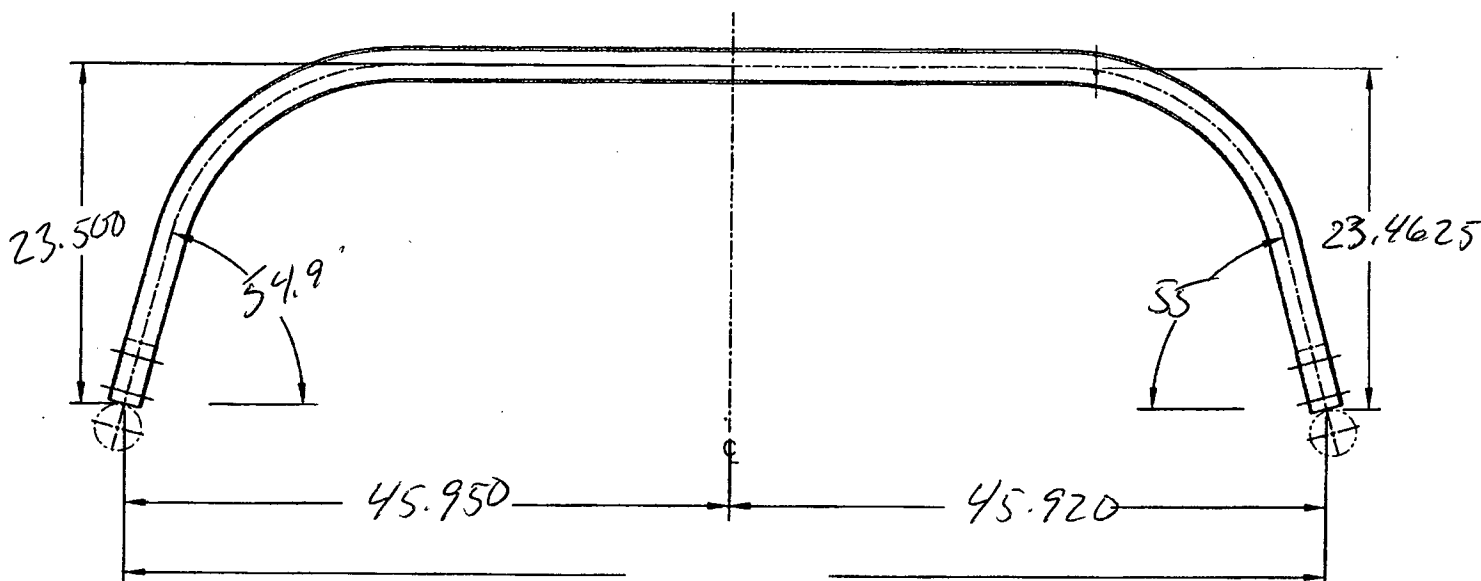
m131 367

m131 367

14

DART AEROSPACE LTD		Work Order:	128061
Description: Crosstube High Fwd (407)		Part Number:	D407-667-105
Inspection Dwg: D407-667-145 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.62	92.14
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	16	16
Crushing	5.1%	5.7%
Comments		

DAS
38
9-89

QC15 Inspection	DAS
Date	38 9-89

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	
D	12.10.30	Revised Total Span dimensions & Dwg Rev	KJ	

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE
THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS
ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SPIN COPY

UNCO COPY
SUBS
W
V
R

NO. 128061 MJS

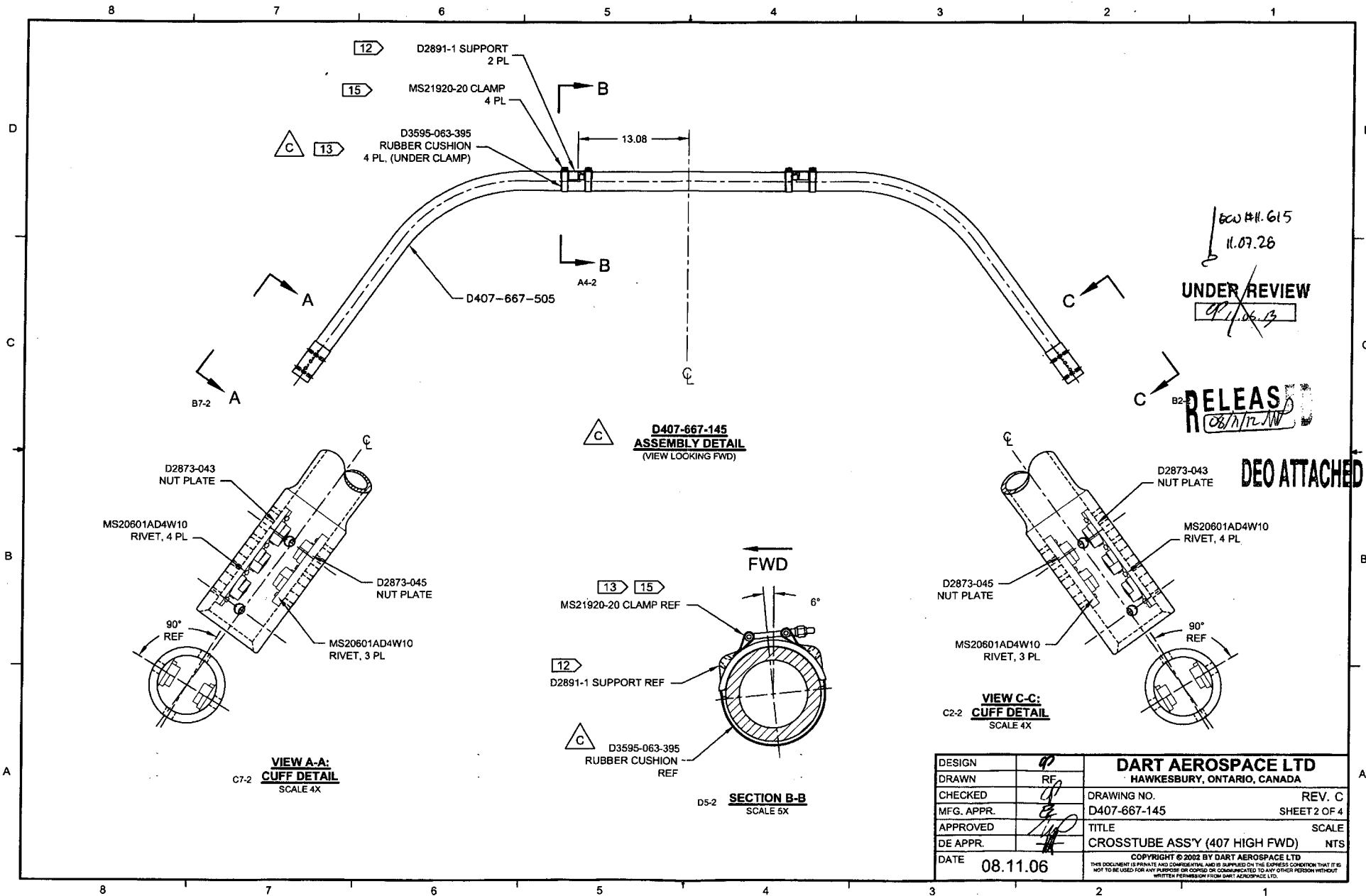
DEO ATTACHED

18-01-05 ECW #11-615
11.07.26

UNDER REVIEW

RELEASED
03/11/12

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D407-667-145	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

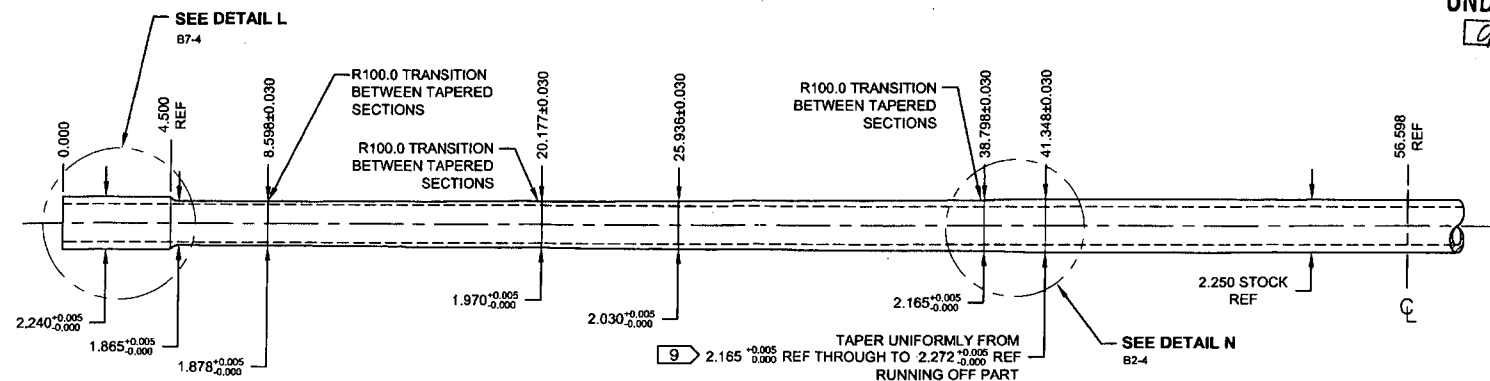


UNDER REVIEW

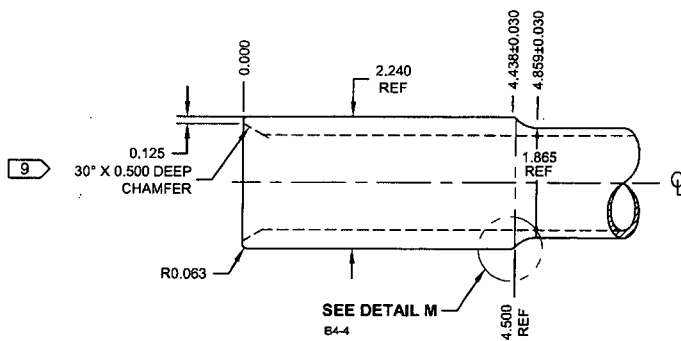
CP 11/08/13

647411-615

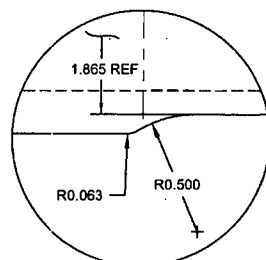
1.07.26



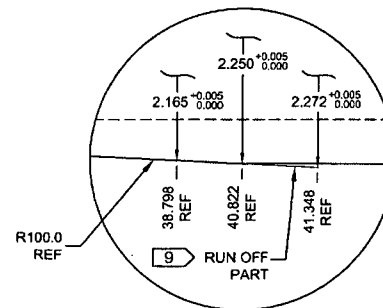
TURNING DETAIL



DETAIL L:
D7-4 **CROSTUBE CUFF**
NOT TO SCALE



DETAIL M:
B6-4 **CUFF TRANSITION**
NOT TO SCALE



DETAIL N:
C3-4 **TAPER RUN-OFF**
NOT TO SCALE

DEO ATTACHED

RELEASED

DESIGN	CP	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO. D407-667-145	REV. C
MFG. APPR.	CP	SHEET 4 OF 4	
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSTUBE ASSY (407 HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-145-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 97	CHECKED 155	MFG. APPR. 155	APPROVED WD	DE APPR. H			
DATE 11.07.15	DATE 11.07.22	DATE 11.07.22	DATE 11/07/22	DATE 11.07.21			

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -145	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRABE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
WD

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D407-667-145-C-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN AJS	CHECKED <i>[Signature]</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DE APPR. <i>[Signature]</i>		
DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	DATE 12.08.02	

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

ITEM	QTY -145	PART NUMBER	DESCRIPTION
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

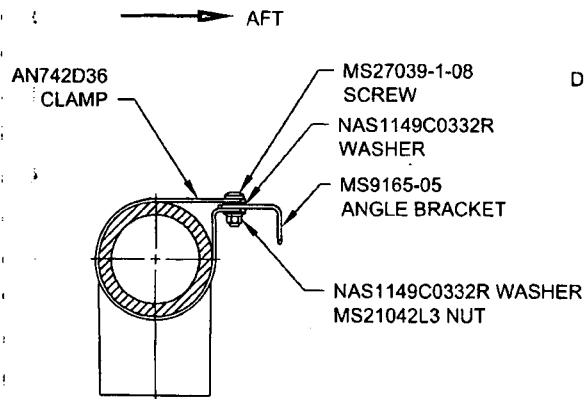
ADD

GENERAL NOTES:

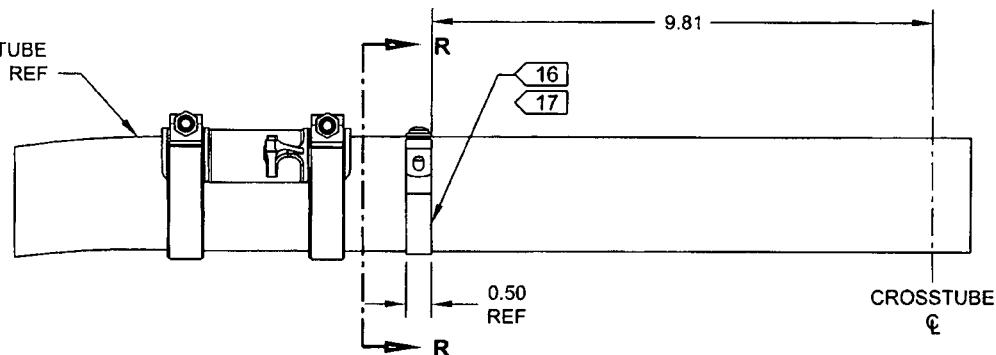
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

ADD

RELEASED
CP 12.08.17
ECN 12-631



SECTION R-R



DETAIL P
BONDING STRAP INSTALLATION 2 PL

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER
REF. CANADIAN STC: SH01-5
REF. FAA STC: SR01304NY
REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004
D206-667-103 @ CHG 005
D206-667-107 @ CHG 002
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004
D206-667-207 @ CHG 002
D407-667-105 @ CHG 004

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 11.07.20
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED	ASS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5
REF: FAA STC: SR01304NY
REF: EASA STC: EASA.IM.R.S.01179

PURPOSE:

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

INSTRUCTIONS:

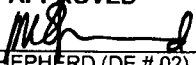
DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

WEIGHT AND BALANCE

There is a negligible weight change associated with the installation of this kit.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 12.08.02
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE (REF CIR 12-3)	AJS	11.08.02
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9628	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		GROUNDING STRAP INSTALLATION	NTS
DATE	12.08.02	COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

407-667-105 Folio

Setup

Use 1.6" spacers under 2.25 rollers

2.935" (2.875 + one .060 shim) for SA,, 2.995 (2.875 + two .060)shims for SB Spacer in buggy on large table/adjust supporting rollers as required.

19.25", **36.4" RED** from cuff, centerline is @ 56.6

LARGE TABLE

Run programs 407f 01-07 without stopping going down the taper, **36.4" line**, approaches are Y 3200 and W 1750.CHECK

Then run programs 407f 10-16 without stopping from **19.25" line**. "CHECK "approaches are Y 3500 and W 3200 for all programs running up taper, . Programs 17 and up are to finish tube off if necessary.CHECK between each program.. **Large table**

in order to reduce the height, increase cuff angle at program 7. tubes are still finishing too high. jw 11-08-26

- update: increased power on step 9 of prog 7 by 20 points. tubes are finishing at prog 19. height fixed.

12-08-01 after program 7 on both tubes, side "B" had bent in substantially more than side "A". approximately 4" more than the first side. tubes both turned out okay, but were watched closely on the second side.

13-02-14 Bent 2 as per folio.. (1-7 CHECK..10-16 CHECK).. ran 17, 18, 19, 20... checking between each, 1st tube finished on 20, 2nd finished on 19.....(run 18a if really close to finished tangent line) MO

1	1
2	2
3	3
4	4
5	5
6	6
7	7
10	10
11	11
14	14
15	15
16	16
17	17
18	18
18A x2	18A x2
19	19
20	20
21	21



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO27244**

Purchase Order Date 1/28/2015

PO Print Date 1/29/2015

Page Number 6 of 7

Order From :

VC-SKY001

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

15	128044	D407-667-105 CROSSTUBE	1/29/2015	1.00	\$0.00	\$0.00
			Yes 1/29/2015			

SAME AS ABOVE

Line Total: \$0.00

16	128061	D407-667-105 CROSSTUBE	1/29/2015	1.00 ✓	\$0.00	\$0.00
			Yes 1/29/2015			

SAME AS ABOVE

SP15-01-29

Line Total: \$0.00

17	128045	D407-667-105 CROSSTUBE	1/29/2015	1.00	\$0.00	\$0.00
			Yes 1/29/2015			

SAME AS ABOVE

Line Total: \$0.00

Note:

1/29/2015

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO22512	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: FD27244
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN: 0	CSN: 0	TSO: 0	

Task:	Sequence: 0
-------	-------------

Work Required:

CARRY OUT NDT ON THE FOLLOWING FWD CROSSTUBE - ID # D119-796-141
WORK ORDER ID'S = 128659,

CARRY OUT NDT ON THE FOLLOWING FWD CROSSTUBE - ID # D407-667-105
WORK ORDER ID'S = 128045, 128061, 128044,

2015-01-29

Action Taken:	Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE IAW ASTM E1417.M13 ANY SUSPECT INDICATIONS VERIFIED BY EDDY CURRENT	28 JAN 15	

Description	Location	P/N	Qty	Batch	S/N Off	S/N On
LPI - ARDROX		970 P25 E		023/2131		
BLACK LIGHT		SINT-20990 N				
EDDY CURRENT		NORTEC 500S		SINT-20656	CAL DAE	30 JAN 15

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp 	Date: 28 JAN 2015
Name: GARY SMITH		



Imron® 3.5 HG + High Gloss Polyurethane Topcoat (RH Quality)



GENERAL

DESCRIPTION

A high gloss 3.5 lbs/gal VOC conforming, low HAPS, polyurethane topcoat based upon unique Axalta formulations and resin technology. The resulting finish product provides a brush, roll or sprayable topcoat designed for use in any environment where long term color and gloss retention are desired.

SUGGESTED USES

As a high performance topcoat over suitable primers or properly prepared steel, galvanized steel, stainless steel, aluminum, concrete, concrete block, fiberglass, plastics and wood where:

- Long term color retention is desired
- Long term gloss retention is desired
- Compliance with 3.5 lbs VOC regulations is desired
- Use in corrosive or industrial marine environments is needed
- Application by brush, roll or spray is desired
- Excellent chemical resistance is desired
- Outstanding flexibility is needed
- Faster dry times are desired

COMPATIBILITY WITH OTHER COATINGS

- Aged Imron 3.5 HG + may be re-coated with itself following washing with clean, fresh water – no mechanical surface preparation is required.
- Imron 3.5 HG + can be applied over other Axalta coatings including, but not limited to Imron Industrial Strength primers and other Imron primers, Imron waterborne polyurethane copolymer coatings, Corlar® epoxies, Tufcote® acrylics, and Tufcote alkyd primers.
- Imron 3.5 HG + may be used over most aged and hard-cured coatings in good condition. Testing for lifting, bubbling and adhesion is recommended to assure compatibility with unknown coatings. Contact your Axalta representative for specific recommendations.

NOT RECOMMENDED FOR

Immersion service or floors

PERFORMANCE PROPERTIES

Abrasion & Mechanical	Excellent
Alkalis	Excellent
Humidity	Excellent
Solvents	Excellent
Color & Gloss Retention	Excellent
Acids	Excellent
Salts	Excellent
Weather	Excellent

The products referenced herein may not be sold in your market. Please consult your distributor for product availability.

COLOR

Imron 3.5 HG + consists of a mixing system utilizing 19 tints and 1 binder (3500P™) to specific mixing formulas. Select high-volume factory package colors are also available. Thousands of custom colors can be mixed.